

FINAL ENVIRONMENTAL ASSESSMENT FOR WASTEWATER TREATMENT CAPABILITY UPGRADE

PROJECT NO. 96-D-122 PANTEX PLANT AMARILLO, TEXAS

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U.S. Department of Energy
Albuquerque Operations Office
Amarillo Area Office
Pantex Plant
P.O. Box 30030
Amarillo, TX 79120-0020

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SUMMARY

This Environmental Assessment (EA) addresses the U.S. Department of Energy (DOE) proposed action regarding an upgrade of the Pantex Plant Wastewater Treatment Facility (WWTF). Potential environmental consequences associated with the proposed action and alternative actions are provided.

DOE proposes to design, build, and operate a new WWTF, consistent with the requirements of Title 30 of the Texas Administrative Code (TAC), Chapter 317, "Design Criteria for Sewage Systems," capable of supporting current and future wastewater treatment requirements of the Plant. Wastewater treatment at Pantex must provide sufficient operational flexibility to meet Pantex Plant's anticipated future needs, including potential Plant mission changes, alternative effluent uses, and wastewater discharge permit requirements. Treated wastewater effluent and non-regulated water may be used for irrigation on DOE-owned agricultural land.

Five factors support the need for DOE action:

- The current WWTF operation has the potential for inconsistent permit compliance.
- The existing WWTF lies completely within the 100-year floodplain.
- The Pantex Plant mission has the potential to change, requiring infrastructure changes to the facility.
- The life expectancy of the existing facility would be nearing its end by the time a new facility is constructed.
- The treated wastewater effluent and non-regulated water would have a beneficial agricultural use, through irrigation.

Evaluation during the internal scoping led to the conclusion that the following factors are present and of concern at the proposed action site on Pantex Plant:

- Periodic wastewater effluent permit exceedances
- Wetlands protection and floodplain management
- Capability of the existing facility to meet anticipated future needs of Pantex
- Existing facility design life
- Use of treated wastewater effluent and non-regulated water for irrigation.

Evaluation during the internal scoping led to the conclusion that the following conditions are not present, nor of concern at the proposed site on Pantex Plant, and no further analysis was conducted:

- State or national parks, forests, or other conservation areas
- Wild and scenic rivers
- Natural resources, such as timber, range, soils, minerals
- Properties of historic, archeological, or architectural significance
- Native American concerns
- Minority and low-income populations
- Prime or unique farmland.

In this document, DOE describes the proposed action and a reasonable range of alternatives to the proposed action, including the "No-Action" alternative.

The proposed action cited in the "U.S. Department of Energy Application for a Texas Pollutant Discharge Elimination System Permit Modifying Permit to Dispose of Waste, No. 02296," December 1998, included the construction of a new wastewater treatment facility, a new irrigation storage pond, and the conversion of the current wastewater treatment facility into an irrigation storage pond. Although a permit modification application has been filed, if a decision on this EA necessitates it, an amendment to the permit application would be made. The permit application would be required for any of the alternatives and the filing does not preclude or predetermine selection of an alternative considered by this EA. This permit change would allow Pantex to land-dispose treated wastewater by irrigating agricultural land.

This construction for the proposed action would include designing two new lagoons for wastewater treatment. One of the lagoons could function as a facultative lagoon for treatment of wastewater. The second lagoon would serve as an irrigation storage impoundment (storage pond), with the alternative use as a facultative lagoon if the first lagoon is out of service for any reason. The new facultative lagoon and irrigation water storage pond would be sited outside of the 100-year flood plain. The existing WWTF lagoon would be used as a storage pond for treated wastewater effluent for irrigation water, as needed. The two new lagoons would be linked by pipeline. This proposed construction would disturb approximately 8 acres. Potential environmental consequences of each action have been identified and evaluated. References used and agencies, organizations, and persons contacted are listed.

1. PURPOSE AND NEED FOR AGENCY ACTION

Background

The current WWTF lagoon was constructed in 1986 as a facultative lagoon and put into operation in 1987. It provides primary treatment followed by a chlorine contact chamber.

Pantex's existing WWTF was originally designed for collection and storage of wastewater for irrigation of surrounding DOE-owned agricultural land (Title II Design Basis Document, Sanitary Sewer and Wastewater Handling Improvements, July 1985). Storage criteria for irrigation purposes, rather than wastewater treatment, governed the original lagoon design. In 1992, DOE discontinued the use of wastewater for irrigation because of the need to leave sufficient amounts of water in the lagoon to meet treatment standards. Under an Environmental, Safety and Health Enhancements Sanitary Sewer System Renovation Project, the lagoon was equipped with aerators and floating baffles to provide secondary treatment.

Because of periodic exceedances of wastewater discharge permit requirements, interim measures have been taken, that include operational schedule changes for aeration and chlorination. Additionally, in October 1997, Pantex Plant stocked the lagoon with algae-eating carp as a research project to control phytoplankton and subsequent total suspended solids (TSS) exceedances at the permit-sampling location.

Pantex Plant is authorized to discharge treated wastewater effluent from the WWTF into Playa 1 in accordance with limits established in the National Pollutant Discharge Elimination System (NPDES) Permit No. TX0107107 and Texas Natural Resource Conservation Commission (TNRCC) Permit to Dispose of Waste, No. 02296, both of which were issued in June 1996. Compliance with all effluent discharge permits issued to Pantex Plant is required.

1.1 Need for DOE Action

DOE needs to achieve permit compliance and meet anticipated future needs for wastewater treatment requirements. The Pantex Plant has several problems with the existing WWTF. The current WWTF operations have the potential for inconsistent permit compliance. Table 1 lists recent permit exceedances with respect to permit limits effective June

1996. Mason & Hanger Corporation (MHC) has received two Administrative Orders, which were issued by the U.S. Environmental Protection Agency (EPA), Region 6, relating to certain permit exceedances. The first Order required compliance and contained a list of the cited violations. The second Order, superseding the first Order, included a list of cited violations, with a list and schedule of corrective actions required to attain permit limit compliance. The DOE has also signed a Federal Facilities Compliance Agreement (FFCA) with the EPA that includes a schedule for compliance that parallels the schedule of Administrative Order. The Administrative Orders and FFCA were issued as a result of alleged violations (exceedances) of the NPDES permit.

At the time the existing WWTF was constructed, the 100-year floodplain of Playa 1 was identified to be outside the area of construction (see reference for Supplementary Document to *Final Environmental Impact Statement (EIS)*, *Pantex Plant Site*, October 1983). Since that time, the U.S. Corps of Engineers re-evaluated the 100-year floodplain of Playa 1 and determined a greater incidence of flooding than had previously been identified (Herrera, 1995, *Final Wetlands Delineation, Pantex Lake*

Table 1 Comparative Exceedance Summary (Current through September 1998)

| Parameter | New Permit Limit | Concentration Value | Month of Exceedance |
|--------------------------------|-----------------------|---------------------|---------------------|
| Biological Oxygen Demand (BOD) | Daily average 30 mg/L | 30.1 mg/L | July 1995* |
| | | 31.8 mg/L | September 1995* |
| Total Suspended Solids (TSS) | Daily average 30 mg/L | 40.0 mg/L | May 1995* |
| | | 36.0 mg/L | July 1995* |
| | | 42.0 mg/L | August 1995* |
| | | 31.7 mg/L | April 1996* |
| | | 36.9 mg/L | May 1996* |
| | | 34.0 mg/L | June 1996 |
| | | 49.2 mg/L | April 1997 |
| | | 32.2 mg/L | August 1997 |
| | Daily maximum 60 mg/L | 120 mg/L | June 1996 |
| Oil & Grease | Daily maximum 15 mg/L | 68.0 mg/L | April 1997 |
| | | 33 mg/L | April 1996* |
| | | 18 mg/L | August 1996 |
| | | 32 mg/L | September 1996 |
| | | 16.5 mg/L | December 1996 |
| | | 18 mg/L | November 1997 |
| | | 5.75 mg/L | March 1995* |
| | | 5.9 mg/L | December 1995* |
| | | 6.9 mg/L | January 1996* |

| | | | |
|---------|-----------------------|-----------|----------------|
| Ammonia | Daily average 5 mg/L | 6.6 mg/L | February 1996* |
| | | 5.2 mg/L | June 1996 |
| | | 7.2 mg/L | July 1996 |
| | | 7.2 mg/L | September 1996 |
| | | 7.5 mg/L | October 1997 |
| | Daily maximum 10 mg/L | 10.4 mg/L | September 1996 |

**Values prior to June 1996 have been included in the table as a comparison to show that the facility would have been unable to meet the existing permit limits that were established in the June 1996 permit.*

and Playas 1, 2, 3, and 4). The existing WWTF now lies completely within the 100-year floodplain of Playa 1, and the top of the lagoon berm is 6 inches below the 100-year flood elevation.

If Pantex Plant's mission changes, treatment capacity may increase or decrease. Increased flow could burden the existing treatment system and decreased flow would increase wastewater residency time, exacerbating algae problems, and resulting in the increase of TSS. In the year 2003, the existing facility will be 17 years into its 20-25 year design life.

Pantex is interested in the opportunity to use treated wastewater effluent for irrigation as a beneficial agricultural use of treated wastewater.

1.2 Scoping, Tiering and Other Regulatory Concerns

Scoping for this EA began with internal project evaluation and preparation of an environmental checklist. This evaluation, conducted in conformance with DOE and MHC procedures, determined the need for this EA. In this EA, DOE evaluates the proposed action with respect to several environmental issues. Other environmental issues were considered during scoping, but were omitted either because of lack of relevance or minor and/or temporary effects. The following issues are present and are of concern, thus requiring evaluation in this document:

- Wastewater discharge permit exceedances
- Executive Order (E.O.) 11998; Floodplain Management, E.O. 11990 - Protection of Wetlands; 10 Code of Federal Regulations (CFR) 1022 - Compliance With Floodplain/Wetlands Environmental Review Requirements
- Capability of the existing facility with respect to mission needs
- Existing facility life expectancy, which is viable through 2011
- Use of water and treated wastewater effluent for irrigation of agricultural land or replenishing of the constructed wetlands cells.

Evaluation during the internal scoping led to the conclusion that the following conditions are not present, nor of concern at the proposed site on Pantex Plant, and no further analysis has been conducted:

- State or national parks, forests, conservation areas, or other areas of recreational, ecological, scenic, or aesthetic importance
- Wild and scenic rivers (16 United States Code [USC] 1271)
- Natural resources (e.g., timber, range, soils, minerals, fish, wildlife, bodies of water, aquifers)
- Cultural resources: properties of historic, archeological, or architectural significance (including sites on or eligible for the National Register of Historic Places and the National Registry of Natural Landmarks) (16 USC 470; 36 CFR 800)
- Native Americans' concerns (16 USC 470; 42 USC 1996)

- Minority and low-income populations (including a description of their use and consumption of environmental resources) (EO 12898)
- Prime or unique farmland (7 USC 4201; 7 CFR 658)

The *Final Environmental Impact Statement for the Continued Operation of the Pantex Plant and Associated Storage of Nuclear Weapon Components*, dated November 1996, evaluated alternatives related to continued operations of Pantex Plant. Operation of the existing WWTF is part of continuing operations discussed in the EIS, and is afforded National Environmental Policy Act (NEPA) coverage by that document. The first phase of the storm water treatment quality upgrade was covered under the above referenced EIS, but the WWTF (phase 2) required additional NEPA documentation, due to the unknown scope at the time the EIS was written. A detailed description of Pantex Plant is contained in the Pantex Plant Environmental Information Document, Programmatic Information Document, and Safety Information Document (Pantex, 1998a, b, & c, respectively).

The playas on the DOE-owned portion of the Pantex Plant, including Playa 1, have been designated as jurisdictional wetlands (Herrera, 1995, *Final Wetlands Delineation, Pantex Lane and Playas 1, 2, 3, and 4*). This EA satisfies the requirements of 10 CFR 1022, "Compliance with Floodplain/Wetlands Environmental Review Requirements," addressed in the "Notice of Floodplain Involvement for Proposed Upgrade and Modification of the Pantex Wastewater Treatment Facility," (Federal Register [FR] Vol. 61, Number 246).

2.0 DESCRIPTION OF THE PROPOSED ACTION AND OTHER ALTERNATIVES

2.1 No-Action Alternative

Selection of this alternative would result in continued use of the existing WWTF (Figure 1), although the facility will be 17 years into its 20-25 year design life. No construction activities are required for this alternative, and therefore, impacts associated with construction are avoided. Actions to improve effluent quality would be limited to operational modifications, leaving resolution of permit compliance related to exceedances in question. The top of the existing WWTF berm would remain 6 inches below the elevation of the 100-year flood level for Playa 1, a designated wetland. Treated wastewater from the existing WWTF would continue to flow to Playa 1.

To improve WWTF effluent quality, and reduce the likelihood of inconsistent compliance with permit TSS requirements, algae-eating fish have been stocked in the existing lagoon on an experimental basis. Evidence suggests that the carp are consuming algae, but insufficient information is available to evaluate the effectiveness of this interim activity. Further research is planned to determine the effectiveness of the algae-eating fish. Effects of the fish on other exceedances (BOD, ammonia) are unlikely, but would be assessed as additional information is collected. Under the existing Texas Parks and Wildlife permit, DOE is only authorized to conduct the algae-eating fish experiment for a two-year period, pending annual renewal (Memorandum of Agreement between DOE/AAO, MHC, and the Texas Parks and Wildlife Department, approved by the Texas Parks and Wildlife Department on September 16, 1997).

The No-Action Alternative has the potential for wastewater discharge permit exceedances and would not provide sufficient operational flexibility to meet Pantex Plant's anticipated future needs, including potential Plant mission changes and alternative effluent uses.



Figure 1: Location of Existing Wastewater Treatment Facility

2.2 Proposed Action: Construction of Lagoons and Land Disposal System for Zero Discharge:

As the proposed action , DOE proposes a new wastewater treatment facility sufficient to meet the future needs of Pantex Plant. The proposed facility (Figure 2) would be designed to meet existing regulatory requirements and reasonably foreseeable changes in these requirements. Treatment capability would be sufficiently flexible to allow increases or decreases in treatment volumes while meeting permit requirements, if the Pantex Plant mission changes or if State or Federal wastewater treatment permit requirements become more restrictive. DOE also proposes to use the existing WWTF lagoon for storage of irrigation water. This proposed action would reduce the potential for wastewater discharge permit exceedances at the wastewater treatment facility.

The proposed action would result in design, construction, and operation of two new lagoons and interconnecting piping, using approximately 8 acres of grazing land now used by Texas Tech University. One of the lagoons would function as a facultative lagoon for treatment of wastewater. Construction of the lagoons would be primarily earthen, including a clay liner installed and maintained in accordance with 30 TAC, Chapter 317, and other applicable regulations. The soils would be tested to determine if they are adequate for the earthen liner. Soils may be brought in if necessary or a synthetic liner may be used. The second lagoon would serve as an irrigation storage impoundment, with the alternative use as a facultative lagoon if the first lagoon were out of service for any reason. Excess soils from the lagoon construction excavation would go to an existing approved onsite landfill. Revegetation would be implemented, as required, to restore disturbed areas resulting from construction. The existing lagoon was originally constructed using storage criteria for design, but the new facultative lagoon and irrigation water storage pond would be designed specifically for wastewater treatment and would be sited outside of the 100-year floodplain. The existing WWTF lagoon would be used as a supplemental storage pond for treated wastewater effluent and non-regulated water as irrigation water.

Non-regulated water (including treated water from the groundwater treatment system) would go into the storage ponds as capacity allows for subsequent pumping to DOE-owned agricultural land. The perched aquifer groundwater is undergoing treatment, via a pump and treatment system, and is expected to become a long-term project. The use of this water (non-regulated groundwater and treated wastewater effluent from a new WWTF) for irrigation would serve as a beneficial agricultural use of the water.

The proposed action would comply with the applicable portions of Title 30 TAC, Chapter 309, "Domestic Wastewater Effluent Limitation and Plant Siting," specifically Subpart C, "Land Disposal and Sewage Effluent." This regulation discusses land disposal as use of water for irrigation to grow crops. 30 TAC 309, Subpart C, requires that owners/operators of agricultural land irrigated with wastewater not treated to secondary treatment standards preclude access by the public to those lands. The agricultural lands to be irrigated by Pantex are protected from public access by both passive and active types of barriers (30 TAC 309.20 (b) (1)). The sulfuric acid equipment would be removed with the discontinuation of the existing lagoon as a treatment facility. Disinfecting the effluent would not be required; however, the chlorine contact chamber at the existing WWTF would remain.

This proposed action would require the management of sludge, previously generated by the existing wastewater treatment facility that resides in the existing lagoon. This sludge would be removed before the lagoon would be used for storing irrigation water.

Three types of irrigation systems are considered for land disposal (land application) in the proposed action , in which one or more systems would be employed.

- A subsurface flow system would saturate subsurface soils. Installation of this system would require some trenching, but it would not need runoff protection.
- A center-pivot system would require the use of sprinklers, along with trenching to the center point of the pivot system. Some runoff protection would be required.
- An overland flow irrigation system would flood a designated area, requiring greater runoff protection than the sprinkler irrigation system, but would require less trenching.

Existing irrigation pipelines would be used where feasible. A water-use balance, in cooperation with Texas Tech University Research Farm, would be developed during the design phase of this alternative so that sufficient storage capacity would be available when there are decreased irrigation needs. Excess soils from the lagoon construction excavation would go to the existing approved onsite landfill. Revegetation would occur as required to restore disturbed areas resulting from construction.

Playa 1 would no longer receive flow of treated wastewater, but would continue to receive storm water runoff and irrigation runoff, depending on the method of irrigation, thus returning the playa to a more natural ephemeral condition. The open-water areas used by local and migratory waterfowl that would be lost by discontinuing treated wastewater effluent discharges into Playa 1 would be mitigated by the new facultative lagoon and storage ponds, and the existing WWTF that would be used for storage of treated wastewater. The construction and maintenance for this proposed

action would comply with the requirements of 30 TAC, Chapter 317. Figure 2 shows a conceptual design that would be required in the upland area south of the existing lagoon and the approximate location (approximately 8 acres).

The terrestrial wildlife habitats may be reduced or altered in the 8 acres; however, some additional aquatic habitat for waterfowl may be provided. This affected area was previously disturbed land; therefore, impacts to wildlife are expected to be minimal. Domestic and industrial wastewater from Plant operations would enter the south end of the facultative lagoon by means of a lift station. Gravity flow would carry the effluent through the lagoon and designated storage basins. The algae-eating fish could be continued on an experimental basis, depending on existing experiment results and permit renewal, within the new facultative lagoon and storage pond.



Figure 2: Zero Discharge Proposed Action

2.3 Construction of Lagoon and Wetland Cells: Alternative 1

Selection of this alternative would also result in a new WWTF. The new WWTF would consist of a new lagoon (Figure 3), designed specifically for wastewater treatment, and constructed wetlands cells, all of which would be sited outside the 100-year floodplain. The constructed wetlands would consist of a lined basin or channel that uses a substrate or other medium to support rooted emerged or submerged plants. Granular rock could be used as the

substrate for the growth medium. Wastewater would flow over the top of the medium at depths of 6 to 18 inches. This process is effluent "polishing" for removal and treatment of pollutants. Also, the existing WWTF lagoon could be used as a storage pond for non-regulated water and treated wastewater effluent. Water would flow to the wetlands cells and flow to Playa 1 would be reduced. However, additional storage capacity (a water storage basin) could be required depending on final design requirements. Construction for the water storage basin could disturb an additional 4 acres, if the basin is not located in the vicinity of the wetlands cells. Additionally, sludge generated by biological wastewater treatment would need to be managed. The sulfuric acid equipment would be removed with the discontinuation of the existing lagoon as a treatment facility. The existing chlorine contact tank and chlorination facilities would be used to provide disinfection. Excess soils from the lagoon and wetlands cells construction excavation would go to the existing approved onsite landfill. Revegetation would occur as required to restore disturbed areas resulting from construction. This proposed action would reduce the potential for wastewater discharge permit exceedances at the wastewater treatment facility; however, it would be more subject to seasonal fluctuations than the construction of lagoons and land disposal system.

Water surface area lost for waterfowl use in Playa 1, due to increased evapotranspiration and flow of water to wetlands cells, would be offset or actually increased with the new constructed wetlands. This alternative would not affect the continued storm water runoff flow into ditches and then into Playa 1.

Construction materials of the lagoon would be primarily earthen, including a clay liner installed and maintained in accordance with 30 TAC, Chapter 317, and other applicable regulations. The soils would be tested to determine if they are adequate for the earthen liner. Soils may be brought in, if necessary, or a synthetic liner may be used. Figure 3 shows the conceptual design, and approximate location of acreage (approximately 15 acres) that would be disturbed in the upland area south of the existing lagoon that is now used as grazing land by Texas Tech University. The wetlands cells would be constructed of earthen material, including a clay liner and berms. The wetlands cells would provide for plant growth, which would have to be harvested and disposed of, as required.

Domestic and industrial wastewater from Plant operations would enter the south end of the lagoon by means of a lift station. Gravity flow would carry the effluent through the lagoon and the adjacent constructed wetlands. Flow would be distributed among the constructed wetlands cells according to treatment needs. Both the lagoon and constructed wetlands are considered secondary treatment processes. This alternative would provide for treatment facility expansion, if needed, by means of adding new constructed wetlands cells. Such expansion would not encroach upon the 100-year floodplain. Algae-eating fish could be employed, under a continued experimental basis, depending on existing experimental results and permit renewal, within the lagoons of this treatment system.

The terrestrial wildlife habitats may be reduced or altered in the 15 acres; however, some additional aquatic habitat for waterfowl may be provided. This affected area was previously disturbed land; therefore, impacts to wildlife are expected to be minimal.

2.4 Construction of Secondary Treatment Facility: Alternative 2

Selection of this alternative would result in design, construction, and operation of new secondary treatment device(s) at the existing wastewater treatment facility. Examples of secondary treatment systems include a multichannel oxidation ditch system and a skid-mounted unit; both are mechanical treatment systems. Construction, operation, and maintenance of the secondary treatment facility would comply with 30 TAC, Chapter 317, and other applicable regulations. Flow of treated wastewater effluent from the WWTF to Playa 1 may be reduced, depending on the design. Additionally, sludge not currently generated by the existing wastewater treatment facility would have to be managed separately. This alternative would not be anticipated to affect more than 8 acres.

Wastewater from Plant operations would enter the secondary treatment system by means of a lift station. Secondary treatment systems, envisioned in this alternative, are typically mechanical, requiring high energy consumption and technically capable personnel for operation. Also, some secondary treatment systems, such as an oxidation ditch system, could be modified to provide tertiary treatment, a process generally used to remove nitrogen and phosphorus. This alternative would provide for treatment facility equipment expansion, if needed. Such an expansion would not

encroach upon the 100-year floodplain and would require less than the 8 acres estimated for the proposed action or the 15 acres estimated for the constructed wetlands alternative.

This alternative was not considered further since the Pantex Plant does not have a high enough pollutant concentration to justify the use of a secondary treatment facility. The Pantex Plant would still have to mitigate for a 100-year flood event around the current facility.



Figure 3: Constructed Wetlands Alternative 1

3.0 EVALUATION OF ENVIRONMENTAL CONSEQUENCES

This section describes the environmental consequences associated with the proposed action and other alternatives to meet the need. See Table 2 for a comparison of environmental concerns. Cultural resources for the existing environment that are addressed in 16 USC 470 and 36 CFR 800; threatened, endangered, or candidate species and/or

their critical habitat, and other special status (e.g., State-listed) species issues listed in 16 USC 1531; and environmental justice issues listed in EO 12898, are either evaluated under existing Plant documents, such as the Sitewide EIS, or are not present, and are not addressed in this EA.

The following issues are evaluated in this document:

- Wastewater discharge permit exceedances for all alternatives
- Wetlands Executive Order (EO) 11990; 10 Code of Federal Regulations (CFR) 1022, and floodplain management (EO 11988) for all alternatives
- Capability of the existing facility with respect to potential mission changes for No-Action Alternative
- Existing facility life expectancy, which is viable through 2011 for No-Action Alternative
- Use of water and treated wastewater effluent for irrigation of agricultural land or replenishing of the constructed wetlands cells, depending on which alternative is selected.

3.1 No-Action Alternative

Selecting this alternative would include these issues:

- Continue to provide aquatic and wetlands habitat for wildlife and migratory birds at Playa 1
- Would not disturb existing terrestrial habitat or agricultural areas
- Continue the potential for wastewater discharge permit exceedances at the existing WWTF,
- Extend the presence and use of the existing WWTF, and the chlorine and sulfuric acid treatment equipment in the 100-year floodplain
- Require that the existing facility be replaced or upgraded in the near future because the facility will be 17 years into its 20-25 year design life
- Would not address infrastructure requirements and potential mission changes at Pantex Plant
- Would not allow for irrigation of agricultural crops with treated wastewater effluent and non-regulated water
- Prevent compliance with schedule made in response to the EPA Region 6, "Administrative Order Docket No. VI-98-0401," and FFCA from being met
- Continue the potential for Playa 1 to be inundated with raw sewage, if a 100-year flood event occurred.

Table 2 Comparison of Concerns

| Concerns | No Action | Proposed Action | Alternative #1 | Alternative #2 |
|--|-----------|-----------------|---|----------------|
| Reduce the potential for wastewater discharge permit exceedances at WWTF | No | Yes | Yes; however, more subject to seasonal fluctuations | Yes |
| Compliance with schedule in response to EPA Admin. Orders | No | Yes | Yes | Yes |
| Eliminate potential for Playa 1 to be inundated with raw sewage | No | Yes | Yes | Yes |
| Remove sulfuric acid equipment and wastewater treatment activities from 100-year floodplain | No | Yes | Yes | Yes |
| Use of non-regulated water and treated wastewater effluent for irrigation of agricultural land | No | Yes | No | No |
| Amount of disturbed acreage (includes piping) | No change | 8 | 15* | <8 |

| | | | | |
|---|-----------|---|--|-------------------------|
| Disturb existing terrestrial habitat or agricultural areas | No | Yes | Yes | Yes |
| Increase aquatic and wetlands habitat for wildlife/migratory birds by increasing open-water | No | Variable** | Yes | Yes |
| Eliminate or reduce wastewater effluent flows to Playa 1 due to increased evapotranspiration and seasonal irrigation | No | Eliminate | Reduce | No |
| Provide upgraded infrastructure for wastewater treatment capability needs for current requirements and limited Pantex Plant mission changes | No | Yes | Yes | Yes |
| Return Playa 1 to a more ephemeral condition | No | Yes | Yes | No |
| Concerns | No Action | Proposed Action | Alternative # 1 | Alternative #2 |
| Require construction permits and mitigation action for construction actions | No | Yes | Yes | Yes, if 5 acres or more |
| Require management of sludge generated from wastewater treatment | No | Yes | Yes | Yes |
| Change in water infiltration rates | No | Decrease - eliminate discharge to Playa 1 | Decrease - reduce discharge to Playa 1 | No |

* May be 19 acres if 4 additional areas are needed for storage.

** Since Playa 1 will be an ephemeral wetland, available waterfowl habitat will be dependent upon precipitation, and/or moist soil management.

3.2 Proposed Action: Construction of Lagoons and Land Disposal System for Zero Discharge Alternative

Selecting this alternative would include these issues:

- Reduce the potential for wastewater discharge permit exceedances at the WWTF
- Affect compliance with schedule made in response to the EPA Region 6 Administrative Order Docket No. VI-98-0401 and FFCA
- Eliminate the potential for Playa 1 to be inundated with raw sewage, remove the sulfuric acid equipment (but not the chlorine treatment equipment) from the 100-year floodplain, and remove the wastewater treatment activities from the 100-year floodplain
- Provide flexibility for the existing WWTF lagoon to be used as a holding pond for irrigation of existing agricultural land
- Eliminate wastewater effluent flows to Playa 1 from the WWTF due to increased evapotranspiration and seasonal irrigation

- Provide upgraded WWTF meeting infrastructure requirements for wastewater treatment capability needs for current requirements and limited potential Pantex Plant mission changes
- Return Playa 1 to a more natural ephemeral condition
- Generate potential minor impacts if a water pipeline were installed, transferring treated water to the existing WWTF lagoon for storage as irrigation water, although pipeline construction would occur in previously disturbed areas
- Require construction permits and mitigation action for all construction activities, such as sediment controls
- Require the management of sludge generated by existing wastewater treatment facility.
- Amount of acreage disturbed would be 8 acres
- Alternative would have no effect on groundwater

3.3 Construction of Lagoon and Wetlands Cells: Alternative 1

Selecting this alternative would include these issues:

- Reduce the potential for wastewater discharge permit exceedances at the WWTF; but it would be more subject to seasonal fluctuations than the construction of lagoons and land disposal system
- Affect compliance with schedule made in response to the EPA Region 6 Administrative Order Docket No. VI-98-0401 and FFCA
- Eliminate the potential for Playa 1 being inundated with raw sewage, remove the sulfuric acid equipment (but not the chlorine treatment equipment) from the 100-year floodplain, and remove the wastewater treatment activities from the 100-year floodplain
- Reduce flows to Playa 1 from the WWTF due to increased evapotranspiration and flow of water to wetlands cells
- Provide an upgraded WWTF meeting infrastructure requirements for wastewater treatment capability needs for current requirements and limited potential Pantex Plant mission changes
- Generate potential minor impacts if a water pipeline were installed transferring treated water to the existing WWTF lagoon for storage, although pipeline construction would occur in previously disturbed areas. An additional 4 acres could be disturbed if a water storage basin is required
- Require construction permits and mitigation action for all construction activities, such as sediment controls
- Require the management of sludge generated from wastewater treatment
- Amount of acreage disturbed would be 15 acres; acreage disturbed may be 19 acres if 4 additional areas are needed for storage
- Alternative would have no effect on groundwater

3.4 Construction of Secondary Treatment Facility: Alternative 2

Selecting this alternative would provide some similar environmental benefits and consequences to those described in Section 3.2. Differences would include:

- The potential for less aquatic and terrestrial habitat loss
- A secondary treatment system having the potential of being upgraded to tertiary treatment standards
- These types of systems are typically mechanical, requiring high energy consumption and technically capable personnel for operation, relative to the Proposed Action and constructed wetlands alternative
- The wastewater generated at Pantex Plant does not have a pollutant concentration level high enough to warrant this secondary treatment facility. Pantex Plant would have to mitigate for a 100-year flood event around the current facility.

4.0 CUMULATIVE EFFECTS

No new activities on Plant site would be considered cumulative, with the possible exception of the soil removal activities and transportation of that soil to the existing approved onsite landfill for the proposed action. These actions would require the construction of lagoons and a land disposal system for the zero discharge alternative, and construction of a lagoon and wetland cells for alternative 1.

The construction of lagoons and land disposal system would include 2 acres of soil disturbance and soil removal at a depth of 12 to 13 ft for the lagoon, and a storage area of 2 acres of soil disturbance and soil removal at a depth of 15 ft. The construction of the lagoon and wetland cells would include 2 acres of soil disturbance and soil removal at a depth of 12 to 13 ft for the lagoon and 8 acres of soil disturbance and soil removal at a depth of 4 to 5 ft for the wetland cells.

A cut and balance survey would be performed to determine the amount of soil that would be retained and the amount of soil that would be transported to the existing approved onsite landfill is expected that a sizeable amount of soil would be retained for either of these alternatives to be used for embankments and that a sizeable amount of soil would not be considered excess for transporting to the existing approved onsite landfill. Therefore, the possibility of the landfill filling up is considered unlikely.

5.0 REFERENCES

Code of Federal Regulations, Title 10, 1021 (10 CFR 1021), *DOE National Environmental Policy Act Implementing Procedures*.

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Operations Office. Amarillo, Texas, October.

Pantex. 1998b. *Programmatic Information Document*, prepared for the U.S. Department of Energy, Amarillo Operations Office. Amarillo, Texas, October.

Pantex. 1998c. *Safety Information Document*, prepared for the U.S. Department of Energy, Amarillo Operations Office. Amarillo, Texas, October.

Supplementary documentation for an Environmental Impact Statement regarding the Pantex Plant, Hydrologic Study for Pantex. N.M. Becker and W.K. Purtymon. Prepared by Los Alamos National Laboratory. LA-9455-PNTX-A, issued December 1982.

Texas Natural Resource Conservation Commission regulations, Chapter 309, "Domestic Wastewater Effluent Limitation and Plant Siting," specifically Subpart C, "Land Disposal and Sewage Effluent."

Texas Parks and Wildlife Code, Chapter 66, Subchapter A.

Title 30, Texas Administrative Code, Chapter 317, "Design Criteria for Sewage Systems."

U.S. Army Corps of Engineers, Tulsa District. January 1995. *Pantex Plant Flood Plain Delineation Report*.

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U.S. Department of Energy, Office of NEPA Oversight. May 1993. *DOE Recommendations for the Preparation of Environmental Assessments and Environmental Impact Statements*.

42 USC 4321, *National Environmental Policy Act of 1969*, as amended.

Weinreich, W.A. Response to "Administrative Order Docket No. VI-98-0012," Letter to Vivian Hare of EPA Region 6, February 1998.

6.0 AGENCIES, ORGANIZATIONS, AND PERSONS CONTACTED

Texas Parks and Wildlife Department
Texas Tech University
U.S. Fish and Wildlife Service

U.S. DEPARTMENT OF ENERGY FINDING OF NO SIGNIFICANT IMPACT WASTEWATER TREATMENT FACILITY UPGRADE PANTEX PLANT

AGENCY: Department of Energy

ACTION: Finding of No Significant Impact

SUMMARY: The U.S. Department of Energy (DOE) has prepared an Environmental Assessment (EA) for upgrading the existing Wastewater Treatment Facility (WWTF) at Pantex Plant near Amarillo, Texas. In accordance with the Council on Environmental Quality requirements contained in 40 CFR 1500-1508.9, the Environmental Assessment examined the environmental impacts of the Proposed Action and potential alternatives.

FINDING: Based on the analysis of impacts in the EA, conducting the proposed action, upgrading the existing Wastewater Treatment Facility, would not significantly affect the quality of the environment within the meaning of the National Environmental Policy Act of 1969 (NEPA), 42 U.S.C 4321, et. seq., and the Council on Environmental Quality regulations in 40 CFR 1508.18 and 1508.27. Therefore, the preparation of an Environmental Impact Statement is not required, and the DOE is issuing a Finding of No Significant Impact.

ADDRESSES AND FURTHER INFORMATION: Persons requesting additional information regarding this action or desiring a copy of the Environmental Assessment should contact:

Mr. Thomas Walton, Public Affairs Officer
Amarillo Area Office
P.O. Box 30030
Amarillo, Texas 79120-0020
(806) 477-3120

Copies of the Environmental Assessment are available for public review at the following Department of Energy reading rooms:

U.S. Department of Energy
Freedom of Information Reading Room
Forrestal Building, Room 1E-190
1000 Independence Avenue, SW
Washington, DC 20585
(202) 586-6020

U.S. Department of Energy
Reading Room
Amarillo College
Lynn Library/Learning Center
P.O. Box 447
Amarillo, Texas 79178
(806) 371-5400

U.S. Department of Energy
Reading Room
Carson County Library
P.O. Box 339
Panhandle, Texas 79068
(806) 537-3742

For information regarding the Environmental Assessment and this Finding of No Significant Impact please contact:

Ms. Vicki C. Battley
U.S. Department of Energy
Amarillo Area Office
P.O. Box 30030
Amarillo, Texas 79120-0020
(806) 477-3189

For general information regarding the Department of Energy National Environmental Policy Act process, please contact:

Ms. Carol M. Borgstrom
U.S. Department of Energy
Office of National Environmental Policy Act Oversight

1000 Independence Avenue, SW
Washington, DC 20585
(202) 586-4600 or (800) 472-2756

PROPOSED ACTION: The existing Wastewater Treatment Facility (WWTF) at Pantex Plant needs to be upgraded to meet the future needs of Pantex Plant. The proposed facility would be designed to meet existing regulatory requirements and reasonably foreseeable changes in these requirements. Treatment capability would be sufficiently flexible to allow increases or decreases in treatment volumes while meeting permit requirements, if the Pantex Plant mission changes or if State or Federal wastewater treatment permit requirements become more restrictive. DOE also proposes to use the existing WWTF lagoon for storage of irrigation water.

The proposed action would result in design, construction, and operation of two new lagoons and interconnecting piping, using approximately 8 acres of grazing land now used by Texas Tech University. One of the lagoons would function as a facultative lagoon for treatment of wastewater. Construction materials of the lagoons would be primarily earthen, including a clay liner installed and maintained in accordance with 30 TAC, Chapter 317, and other applicable regulations. The second lagoon would serve as an irrigation storage impoundment, with the alternative use as a facultative lagoon if the first lagoon were out of service for any reason. Revegetation would be implemented, as required, to restore disturbed areas resulting from construction. The existing lagoon was originally constructed using storage criteria for design, but the new facultative lagoon and irrigation water storage pond would be designed specifically for wastewater treatment and would be sited outside of the 100-year floodplain. The existing WWTF lagoon would be used as a supplemental storage pond for treated wastewater effluent and non-regulated water as irrigation water.

Non-regulated water (including treated water from the groundwater treatment system) would go into the storage ponds as capacity allows, for subsequent pumping to DOE-owned or Texas Tech-owned agricultural land. The perched aquifer groundwater is undergoing treatment, via a pump and treatment system, and is expected to become a long-term project. The use of this water (non-regulated groundwater and effluent water from a new WWTF) for irrigation would serve as a beneficial agricultural use of the water.

The proposed action would comply with the applicable portions of Title 30 TAC, Chapter 309, "Domestic Wastewater Effluent Limitation and Plant Siting," specifically Subpart C, "Land Disposal and Sewage Effluent." The sulfuric acid equipment would be removed with the discontinuation of the existing lagoon as a treatment facility. Disinfecting the effluent would not be required; however, the chlorine contact chamber at the existing WWTF would remain.

Three types of irrigation systems are considered for land disposal (land application) in the proposed action, in which one or more systems would be employed. Existing irrigation pipelines would be used where feasible. A water-use balance, in cooperation with Texas Tech University Research Farm, would be developed during the design phase of this alternative so that sufficient storage capacity would be available when there are decreased irrigation needs.

Playa 1 would no longer receive flow of treated wastewater, but would continue to receive storm water runoff and irrigation runoff, depending on method of irrigation, thus returning the playa to a more natural ephemeral condition. The open-water areas used by local and migratory waterfowl that would be lost by discontinuing treated wastewater effluent discharges into Playa 1 would be mitigated by the new facultative lagoon and storage ponds, and the existing WWTF that would be used for storage of treated wastewater. The construction and maintenance for this proposed action would comply with the requirements of 30 TAC, Chapter 317.

The terrestrial wildlife habitats may be reduced or altered in the 8 acres; however, some additional aquatic habitat for waterfowl may be provided. This affected area was previously disturbed land; therefore, impacts to wildlife are expected to be minimal. Domestic and industrial wastewater from Plant operations would enter the south end of the facultative lagoon by means of a lift station. Gravity flow would carry the effluent through the lagoon and designated storage basins. Algae-eating fish could be continued on an experimental basis, depending on existing experiment results and permit renewal, within the new facultative lagoon and storage pond.

ALTERNATIVES CONSIDERED: Several reasonable alternatives to the proposed action, "Construction of Lagoons and Land Disposal System for Zero Discharge," are considered in this document. These alternatives include (1) a no-

action alternative (that is, continuing the use of the existing aerated lagoon in its current condition without another facility), (2) construction of a new facility that would consist of a new lagoon designed specifically for wastewater treatment, and constructed wetlands cells, all of which would be sited outside of the 100-year floodplain, and (3) construction and operation of new secondary treatment device(s) at the existing wastewater treatment facility.

The "No-Action Alternative" consists of the continued use of the existing WWTF, although the facility will be 17 years into its 20-25 year design life. No construction activities are required for this alternative, and therefore, impacts associated with construction are avoided. Actions to improve effluent quality would be limited to operational modifications, leaving resolution of permit compliance related to exceedances in question. The top of the existing WWTF berm would remain 6 inches below the elevation of the 100-year flood level for Playa 1, a designated wetland. Treated wastewater from the existing WWTF would continue to flow to Playa 1. The No-Action Alternative has the potential for wastewater discharge permit exceedances and would not provide sufficient operational flexibility to meet Pantex Plant's anticipated future needs, including potential Plant mission changes and alternative effluent uses.

Alternative 1, "Construction of Lagoon and Wetland Cells," would also result in a new WWTF. The new WWTF would consist of a new lagoon designed specifically for wastewater treatment, and constructed wetlands cells (approximately 15 acres), all of which would be sited outside of the 100-year floodplain. Also, the existing WWTF lagoon could be used as a storage pond for treated groundwater and treated effluent. Water would flow to the wetlands cells and flow to Playa 1 would be reduced. However, additional storage capacity (a water storage basin) could be required depending on final design requirements. Construction for the water storage basin could disturb an additional 4 acres, if the water storage basin is not constructed in the vicinity of the wetlands cells.

Alternative 2, "Construction of Secondary Treatment Facility," would result in design, construction, and operation of new secondary treatment device(s) at the existing wastewater treatment facility. Examples of secondary treatment systems include a multichannel oxidation ditch system and a skid-mounted unit; both are mechanical treatment systems. Construction, operation, and maintenance of the secondary treatment facility would comply with 30 TAC, Chapter 317, and other applicable regulations. Flow of treated effluent from the WWTF to Playa 1 may be reduced, depending on the design. Additionally, sludge not currently generated by the existing wastewater treatment facility would have to be managed separately. This alternative would not be anticipated to affect more than 8 acres. Such an expansion would not encroach upon the 100-year floodplain and would require less than the 8 acres estimated for the proposed action or the 15 (or 19) acres estimated for the constructed wetlands alternative. This alternative was not considered further since the Pantex Plant does not have a high enough pollutant concentration to justify the use of a secondary treatment facility. The Pantex Plant would have to mitigate for a 100-year flood event around the current facility.

SUMMARY OF ENVIRONMENTAL IMPACTS: Several environmental issues have been evaluated with respect to each alternative. They are as follows:

- •Wastewater discharge permit exceedances
- •Floodplain Management, Protection of Wetlands
- •Amount of disturbed acreage
- •Existing terrestrial habitat or agricultural areas
- •Use of water and treated effluent for irrigation of agricultural land

- •Aquatic and wetlands habitat for wildlife/migratory birds.

Wastewater discharge permit exceedances

Under the No Action Alternative, the potential for wastewater discharge permit exceedances at the existing WWTF would continue. Under the Proposed Action, "Construction of Lagoons and Land Disposal System for Zero Discharge Alternative," and Alternatives 1 and 2, the potential for wastewater discharge permit exceedances at the WWTF would be reduced.

Floodplain Management, Protection of Wetlands

The No Action Alternative would extend the presence and use of the existing WWTF, and the chlorine and sulfuric acid treatment equipment in the 100-year floodplain. The Proposed Action and Alternative 1 would remove the sulfuric acid equipment (but not the chlorine treatment equipment) from the 100-year floodplain, and remove the wastewater treatment activities from the 100-year floodplain. Under Alternative 2, Pantex Plant would have to mitigate for a 100-year flood event around the current facility.

Existing terrestrial habitat or agricultural areas/amount of disturbed acreage

The No Action Alternative would not disturb existing terrestrial habitat or agricultural areas. Under the Proposed Action, the terrestrial wildlife habitats may be reduced or altered in the 8 acres; however, some additional aquatic habitat for waterfowl may be provided. This affected area was previously disturbed land; therefore, impacts to wildlife are expected to be minimal. Under Alternative 1, the terrestrial wildlife habitats may be reduced or altered in 15 acres; however, an additional 4 acres could be disturbed if a water storage basin is required and it is not located in the vicinity of the wetlands cells. Some additional aquatic habitat for waterfowl may be provided. This affected area was previously disturbed land; therefore, impacts to wildlife are expected to be minimal. Under Alternative 2, it is anticipated that less than 8 acres would be affected.

Use of water and treated effluent for irrigation of agricultural land

The No Action Alternative would not allow for irrigation of agricultural crops with treated effluent and non-regulated water. The Proposed Action would provide flexibility for the existing WWTF lagoon to be used as a holding pond for irrigation of existing agricultural land. Alternatives 1 and 2 would not provide the flexibility for irrigation of agricultural land.

Aquatic and wetlands habitat for wildlife/migratory birds

The No Action Alternative would continue to provide aquatic and wetlands habitat for wildlife and migratory birds at Playa 1. Under the Proposed Action, since Playa 1 would be an ephemeral wetland, available waterfowl habitat would be dependent upon precipitation, and/or moist soil management. Alternatives 1 and 2 would increase open-water areas, which would result in additional aquatic and wetlands habitat.

DETERMINATION: Based on the information contained in the Environmental Assessment, the DOE determines that upgrading the existing Wastewater Treatment Facility (WWTF) at Pantex Plant at Pantex Plant does not constitute a major Federal action significantly affecting the quality of human environment within the meaning of the National Environmental Policy Act, 42 U.S.C. 4321 et seq. Therefore, an Environmental Impact Statement is not required.

Issued Amarillo, TX, on this 27 day of May, 1999.

/s/ John Berner for

W. S. Goodrum

Manager

Amarillo Area Office